

## DISASTER FACTS & FIGURES

Both natural and man-made disasters are becoming more common all around the world. El Niño and La Niña events impact billions of people since these climate extremes disrupt jet streams and regions of high and low pressure. These disruptions can potentially increase or decrease weather-related disasters such as droughts, floods, hurricanes, tornadoes and thunderstorms.

According to the National Oceanic and Atmospheric Administration (NOAA), the interaction between the surface of the ocean and the atmosphere in the tropical Pacific causes El Niño and La Niña. Changes in the ocean impact the atmosphere and climate patterns around the globe. In turn, changes in the atmosphere impact the ocean temperatures and currents. The system swings between warm (El Niño) to neutral (or cold La Niña) conditions on average every 3-4 years.<sup>1</sup>

In addition to the climate extremes mentioned above, some key elements in the increasing numbers of worldwide disasters include:

- Global warming trends
- Larger cities are sprawling into high-risk zones
- World population is nearly 6 billion and growing causing global water consumption to increase
- Humans are damaging our natural resources (e.g. pollution, destroying rain forests, coral reefs, wetlands, etc.)

According to the United States Environmental Protection Agency and the National Academy of Sciences, the Earth's surface temperatures are rising because human activities are altering the chemical composition of the atmosphere through the buildup of greenhouse gases - primarily carbon dioxide, methane, and nitrous oxide. The heat-trapping property of these gases is undisputed although uncertainties exist about exactly how earth's climate responds to them.<sup>2</sup>

The World Meteorological Organization / United Nations Environment Programme Intergovernmental Panel on Climate Change also conclude that carbon dioxide is at record levels in the atmosphere and contributing to global warming.

The WMO also released evidence that the 1990s were the warmest decade globally since instrumental measurements started in the 1860s. So far 1998 was the warmest year on record and March 2002 was the warmest month on record further indicating temperatures are generally on the rise.

Although there are still many unknowns the warming trend poses real risks that could potentially alter sea levels, food and water supplies and climate conditions around the world.

## GENERAL FACTS & FIGURES ON DISASTERS

Without significant reductions in greenhouse gas emissions, scientists estimate the Earth's temperature and sea levels will rise, leading to increased flooding and drastic climate changes.<sup>3</sup>

According to the Worldwatch Institute, 10 million people died as a result of natural catastrophes in the 20th century.

The costs of weather-related disasters in just the United States alone average \$1 billion per week!

Year after year it appears the most frequent natural disasters are wind-storms and floods, which combined usually account for 80%-90% of the worldwide economic losses.

Every year hundreds of millions of people worldwide are evacuated or driven from their homes due to natural disasters.

According to Munich Re Group, (a German reinsurance company that monitors worldwide natural disasters) the following summarizes major losses around the world:

<u>Year</u>	<u>Worldwide Economic Losses</u>	<u># of Major Disasters</u>	<u># of deaths by Major Disasters</u>
2002	\$55 billion (in US \$)	700	11,000
2001	\$36 billion (in US \$)	700	25,000
2000	\$30 billion (in US \$)	850	10,000
1999	\$100 billion (in US \$)	755	75,000
1998	\$92 billion (in US \$)	700	50,000
1997	\$30 billion (in US \$)	538	13,000

Please note the above figures do not include economic losses caused by smaller natural disasters that occur daily around the world. Also, note the worldwide losses in year 2000 may seem less severe since most major disasters happened in less densely populated areas. However, the number of known deaths from earthquakes in early 2001 was higher than the total number of disaster-related deaths throughout all of year 2000! This dramatic statistic proves how devastating disasters can be in highly populated areas.

Now let's look at some facts and figures on specific types of disasters to get a better understanding of how they impact the world.

## FACTS & FIGURES BY TYPE OF DISASTER

### Avalanches, Landslides & Mudflows

Statistics show there are about one million snow avalanches worldwide each year!

Flooding in Venezuela triggered landslides and mudflows that washed away entire villages and mountain slopes claiming more than 30,000 lives in 1999.

Peru experienced one of their worst landslide disasters when a 3-million-ton block of ice split from a melting glacier creating a destructive wave of ice, mud and rocks that traveled 10 miles (16 km) in just 7 minutes killing more than 4,000 people.

### Earthquakes

The U.S. Geological Survey estimates there are 500,000 detectable earthquakes in the world each year - only 100,000 are felt and 100 cause damage.

The world's deadliest earthquake on record hit central China in 1557 killing an estimated 830,000 people.

Earthquakes can happen in virtually any region in Canada although most are concentrated in the western and eastern provinces and territories.

Over 600 million people live in areas that are at risk from earthquakes.

Some of the strongest earthquakes in U.S. history (est 7.9-8.2) occurred on the New Madrid fault (general area between St. Louis and Memphis) back in 1811-1812. This area still experiences about 200 earthquakes a year.

Two of the most violent earthquakes in North America were in British Columbia's Queen Charlotte Island (8.3) and in Anchorage Alaska (9.2).

Aftershocks may be felt for several days, weeks, months or even years depending on the force of a major earthquake.

### Extreme Heat

Because men sweat more than women, men are more likely to suffer heat illness because they become dehydrated faster.

Today less than half a billion people live in water-stressed countries but projections indicate by 2025 that number could increase to 3 billion!

### Fire

At least 80% of all fire deaths occur in residences -- meaning homes, apartments, condos and mobile homes.

Fire kills more Americans every year than all natural disasters combined and careless smoking is the leading cause of fire deaths.

More forests burned in 1997 than at any time in recorded history. According to a report issued by the World Wide Fund for Nature, 80% of those fires were set deliberately to clear land for planting or development.

### **Floods**

The year 2000 floods in Mozambique left nearly 1 million people homeless and affected hundreds of thousands of people again in 2001.

More than 90% of declared disasters include flooding.

The Worldwatch Institute reports 13 of the world's 19 megacities (cities with over 10 million people) are in coastal zones -- and 2 billion (or 1 in 3) people live within 60 miles (100 km) of a coastline.

Flash floods can cause walls of water reaching heights of 20 feet (6 m).

### **Hailstorms**

In 1991, Calgary Alberta experienced the worst hailstorm in Canadian history when a 30-minute storm caused about \$400 million in damage!

On May 22, 1986 an unusual killer hailstorm in China's Sichuan Province left 9,000 people injured and 100 dead.

The largest known hailstone ever measured in the U.S. was found in Aurora, Nebraska on June 22, 2003 with a record 7-inch (17.78 cm) diameter and a circumference of 18.75 inches (over 47 cm)!

### **Hazardous Materials**

As many as 500,000 products pose physical or health hazards and can be defined as "hazardous materials".

Each year about 400 million metric tons of hazardous wastes are generated worldwide.

There are about 30,000 hazardous materials waste sites in the U.S.

Each year over 1,000 new synthetic chemicals are introduced.

### **Hurricanes, Cyclones & Typhoons**

Japan, China, the Philippines and other parts of Southeast and East Asia average about 20 typhoons a year.

Over 75 million Americans live in hurricane areas.

An average of 5 hurricanes strike the U.S. each year.

Nine out of 10 hurricane deaths are due to storm surge (a rise in the sea level caused by strong winds). Storm surges can get up to 20 feet (6 m) high and 50 miles (80 km) wide!

One of the worst cyclone disasters in recorded history struck Bangladesh and India killing between 500,000 and 1 million people back in 1970.

### **Nuclear Power Plants**

The most immediate danger from an accident at a nuclear power plant is exposure to high levels of radiation.

Winds and weather could possibly impact people up to 200 miles (320 km) away from the accident site.

Special plans can be made to assist and care for persons who are medically disabled or handicapped within the 10-mile (16 km) radius of a nuclear power plant.

### **Terrorism**

The U.S. Department of Defense estimates that as many as 26 nations may possess chemical agents and/or weapons and an additional 12 may be seeking to develop them. *(Per FEMA's web site as of February 11, 2003)*

The Central Intelligence Agency reports that at least ten countries are believed to possess or be conducting research on biological agents for weaponization. *(Per FEMA's web site as of February 11, 2003)*

Threats or acts of terrorism cause fear and anxiety in adults and children, but don't let it consume you since it will impact your health. Learn about risks and discuss how best to handle them with the entire family. Stay current on alerts but don't obsess over the news ... and stick to your daily routine!

### **Thunderstorms & Lightning**

On average, the U.S. has 100,000 thunderstorms each year.

At any given moment, nearly 1,800 thunderstorms can be in progress over the face of the earth!

It is a myth that lightning never strikes the same place twice -- it often strikes the same site several times in the course of one storm.

### **Tornadoes**

The U.S. has more tornadoes than any other place in the world and averages 1,000 tornado sightings each year.

In 1974, during a 21-hour period, 148 tornadoes ripped through 13 states and 1 province between Alabama and Ontario, Canada killing 315 people.

Tornadoes can last for several seconds or more than an hour, but most last less than 10 minutes.

A waterspout is a tornado over water but isn't recorded until it hits land.

### **Tsunamis**

A tsunami [soo-nah'-mee] is a series of huge, destructive waves usually caused by an earthquake, volcanic eruption, landslide or meteorite.

A tsunami is NOT a tidal wave — it has nothing to do with the tides!

The West Coast / Alaska Tsunami Warning Center reports a 1958 landslide generated tsunami in Lituya Bay, Alaska produced a 1,722 foot (525 m) wave!

### **Volcanoes**

More than 65 active or potentially active volcanoes exist in the U.S. and over 40 of them are in Alaska!

According to the Catalog of Active Volcanoes published by the Smithsonian Institution there are about 850 active volcanoes that have erupted in the last few hundred years. About 600 of these volcanoes are part of the "Ring of Fire," a region that encircles the Pacific Ocean.

Volcanic eruptions can hurl hot rocks easily 20 miles (32 km) or more.

An erupting volcano can also trigger tsunamis, flash floods, earthquakes, rockfalls, landslides and mudflows.

### **Winter Storms / Extreme Cold**

The leading cause of death during winter storms is from automobile or other transportation accidents.

Cold weather puts an added strain on the heart. Exhaustion or heart attacks caused by overexertion (like shoveling snow or pushing a car) are the second most likely cause of winter storm-related deaths.

The risk of hypothermia is greatest among elderly persons who literally "freeze to death" in their own homes.

The Canadian ice storm of 1998 created an economic loss of almost \$3 billion with massive power outages affecting over 4 million people!